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EXAMINER

BELLO, AGUSTIN

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 07/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,510

Applicant(s)

CHRISTIANSEN ET AL. *Ne*

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a secondary receiver for detecting the alignment of the first modulated signal, an element for generating a first alignment feedback signal, and a secondary transmitter for transmitting the first alignment feedback signal, a detector at the first optical wireless link for detecting the alignment of the second modulated light beam, and a generator for generating a second alignment feedback signal.
4. Claims 9-14 recite the limitation "the detector" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in

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section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 1-3, 5, 7-12, 14-25, as best understood by the examiner in view of the 112 rejections above, are rejected under 35 U.S.C. 102(e) as being anticipated by Willebrand (U.S. Patent No. 6,239,888).

Regarding Claim 1, Willebrand teaches a method of aligning two optical wireless links, comprising: detecting the alignment of a first modulated light beam and generating a first alignment feedback signal, the first modulated light beam having been transmitted by a first optical wireless link; transmitting the first alignment feedback signal to the first optical wireless link over a second modulated light beam; detecting the alignment of the second modulated light beam and generating a second alignment feedback signal; and transmitting the second alignment feedback signal over the first modulated light beam (column 14 lines 20-60, column 15 lines 2-10).

Regarding Claim 2, Willebrand teaches the method of claim 1 further comprising: adjusting the alignment of the first modulated light beam in response to the first alignment feedback signal; and adjusting the alignment of the second modulated light beam in response to the second alignment feedback signal (column 14 lines 51-60, column 16 lines 20-32).

Regarding Claim 3, Willebrand teaches the method of claim 1 further comprising formatting the first and second alignment feedback signals as packets of data and inserting the first and second alignment feedback signals into first and second data streams, respectively, traveling over said first and second modulated light beams respectively (column 6 lines 38-52, column 13 lines 12-38).

Regarding Claim 5, Willebrand teaches the method of claim 1 wherein said steps of detecting comprise comparing the relative intensity of the light beam at a plurality of photodetectors (column 12 lines 51-67, column 13 lines 1-38, 59-64, column 15 lines 12-16).

Regarding Claim 7, Willebrand teaches the method of claim 1 further comprising: extracting said first alignment feedback signal from a data stream transmitted over said second modulated light beam (reference numeral 42x in Figure 11); and extracting said second alignment feedback signal from a data stream transmitted over said first modulated light beam (reference numeral 42y in Figure 11).

Regarding Claims 8 and 12, Willebrand teaches the method of claim 7 wherein said first and second alignment feedback signals are transmitted as control packets and said extracting steps comprise detecting a destination address within said control packets (column 13 lines 66-67, column 14 lines 1-19).

Regarding Claim 9, Willebrand teaches an optical wireless link comprising: a photodetector configured to receive a modulated light beam (reference numeral 112 in Figure 12); the modulated light beam conveying data (inherent); a control circuit coupled to the photodetector (reference numeral 100 in Figure 11), the control circuit receiving the data conveyed by the modulated light beam (reference numeral 42y in Figure 11), and extracting therefrom embedded control information (as provided by demultiplexer 40 and controller 100 in Figure 11); a processor (column 12 lines 1-4) coupled to the detector and receiving therefrom the control information and generating in response thereto beam alignment signals (column 14 lines 49-60); a beam transmitter coupled to the processor (reference numeral 32,44, 52,84 in Figure 11) and receiving therefrom the beam alignment signals (reference numeral 106 in Figure 11);

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the beam transmitter adjusting alignment of a light beam in response to the beam alignment signals (column 14 lines 49-60).

Regarding Claim 10, Willebrand teaches the optical wireless link of claim 9 further comprising: a servo detector adjacent the photodetector and configured to detect light intensity information (column 12 lines 1-9); and a control information generator coupled to the servo detector and configured to generate control information from the light intensity information received from the servo detector (column 12 lines 21-24); and wherein the control circuit embeds the control information into data to be conveyed by the beam transmitter (column 12 lines 51-67, column 13 lines 1-25).

Regarding Claim 11, Willebrand teaches the optical wireless link of claim 9 wherein said conveyed data is formatted as data packets and wherein the control information is formatted as control packets interspersed with the data packets (column 13 lines 12-16).

Regarding Claim 14, Willebrand teaches the optical wireless link of claim 10 wherein the optical wireless device receives control information relating to alignment of its beam transmitter and generates control information relating to alignment of a remote optical wireless link (column 14 lines 20-26, 45-60, column 15 lines 1-10).

Regarding Claim 15, Willebrand teaches a method of receiving information at an optical detector comprising: receiving optical information at an optical detector (reference numeral 32, 44 in Figure 11) ; converting the optical information into electrical information (column 6 lines 49-52); determining whether the electrical information is control information (inherent in the separation of wavelengths column 6 lines 42-49, column 14 lines 3-19); adjusting an optical transmitter based on the control information (column 14 lines 20-26).

Regarding Claim 16, Willebrand teaches the method of claim 15 further comprising passing the electrical information to a destination device (i.e. passing signal 42y to controller 100 in Figure 11).

Regarding Claim 17, Willebrand teaches the method of claim 15 wherein the step of adjusting an optical transmitter comprises adjusting the alignment of a light beam (column 14 lines 20-26).

Regarding Claim 18, Willebrand teaches the method of claim 15 wherein the optical information is transmitted on a modulated (i.e. via the control information), collimated light beam (via lens in column 15 lines 22-24).

Regarding Claim 19, Willebrand teaches the method of claim 15 wherein the optical information comprises data to be conveyed to a data sink / source and control information (column 6 lines 53-57).

Regarding Claim 20, Willebrand teaches the method of claims 15 wherein the step of receiving the optical information comprises detecting a modulated light beam with a photodetector (column 13 lines 59-64, reference numeral 112 in Figure 12).

Regarding Claim 21, Willebrand teaches the method of claim 15 wherein the step of determining whether the electrical information is control information comprises reading the destination address of the electrical information (inherent in column 14 lines 6-19).

Regarding Claim 22, Willebrand teaches a system for communicating a data stream between a first and second data devices comprising: a first data source / sink generating a stream of data packets (column 6 lines 53-57, reference numeral 46, 48, 52, 84 in Figure 11); a first optical wireless device (reference numeral 30 in Figure 11) coupled to receive the stream of data

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packets from the first data source / sink and including: a switch configured to receive the stream of data packets and to insert therein alignment control packets (reference numeral 48 in Figure 11); a light beam transmitter coupled to the switch and configured to transmit the stream of data packets and control packets on a modulated light beam (reference numeral 84, 52, 54, 44, 32 in Figure 11); a second optical wireless device comprising: a photodetector configured to receive the modulated light beam (reference numeral 32, 44, 34, 36, 84 in Figure 11); a second switch configured to receive the stream of data packets and control packets from the photodetector and to extract therefrom the control packets (reference numeral 40 in Figure 11); a second light beam transmitter (reference numeral 84, 52, 54, 32, 44 in Figure 11); and a light beam transmitter alignment unit coupled to the second light beam transmitter and configured to align the second light beam transmitter in response to the control packets (reference numeral 56, 106, 100 in Figure 11); and a second data source / sink coupled to the second optical wireless device and receiving therefrom the stream of data packets (column 6 lines 53-57, reference numeral 42 in Figure 11).

Regarding Claims 23-25, Willebrand teaches the system of claim 22 wherein at least one of the first data source / sink and the second data source / sink is a computer network, telephone, computer (column 6 lines 53-57).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Willebrand in view of Solinsky (U.S. Patent No. 5,142,400).

Regarding Claim 4, Willebrand differs from the claimed invention in that Willebrand fails to specifically teach that the first and second alignment signals include x and y positions for the first and second modulated light beams, respectively. Transmission of x and y coordinates in an optical alignment system are very well known in the art. Solinsky, in the same field of endeavor, teaches that using of such coordinates in a feedback alignment signal is very well known in the art (column 1 lines 36-46). One skilled in the art would clearly have recognized that it would have been beneficial to establish a coordinate system for use during alignment in order to precisely determine the exact amount of misalignment between the transmitter and receiver, thereby allowing for quick realignment according to the received misalignment information. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have incorporated x and y positions for the first and second modulated light beams in order to precisely determine the exact amount of misalignment between the transmitter and receiver, thereby allowing for quick realignment according to the received misalignment information.

9. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willebrand.

Regarding Claims 6 and 13, Willebrand differs from the claimed invention in that Willebrand fails to specifically teach that the data packets are Ethernet frames and wherein the packets are SubNetwork Access Protocol packets. However, Willebrand teaches that a variety of encoding and decoding schemes are possible for transmitting the control information to and from

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the wireless optical modules and also teaches that the system connected to each wireless link can be a LAN node or the like. This would have suggested to one skilled in the art that it would have been possible to encode the control signals in Ethernet frames, wherein the packets are SubNetwork Access Protocol packets. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have encoded the control information in Ethernet frames, wherein the packets are SubNetwork Access Protocol packets.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Palmer and Javitt teach alignment systems.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (703)308-1393. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703)305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

AB

July 19, 2002


JASON CHAN
SUPERVISORY PATENT EXAMINER
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